DOCUMENT RESUME

ED 189 515 CG 014 540

AUTHOR Rothblum, Esther D.; And Others
TITLE A Comparison of Self-Control and Therapist Control in the Treatment of Depression.
PUB DATE 79
NOTE 38p.; Paper presented at the Annual Meeting of the Eastern Psychological Association (51st, Hartford, CT, April 9-12, 1980).

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Adults; Behavioral Science Research; *Behavior Modification; Comparative Analysis; *Counseling Effectiveness; *Depression (Psychology); Group Therapy; *Improvement; Measurement Techniques; *Psychopathology; *Self Control; Self Evaluation (Individuals)

ABSTRACT

Depression has been one of the last categories of psychopathology to be seriously investigated. A self-control behavior therapy program for depression was evaluated against a therapist-control behavior therapy program in an attempt to isolate the effects of control on alleviation of depression and to improve research designs. Clinically depressed obese subjects (N=22) were randomly assigned to either a self-control or therapist-control behavior therapy program that met for six weekly treatment sessions and three monthly maintenance sessions. There was a significant treatment group and assessment period interaction on the Depression Scale of the Minnesota Multiphasic Personality Inventory, with the therapist-control group significantly more improved at posttest and follow-up. In a second experiment, 33 clinically depressed subjects were matched to one of three groups: self-control, therapist-control, or attention-placebo. There was a significant treatment group and assessment period interaction on the Lewinsohn Pleasant Events Schedule Reinforcement Potential, with therapist-control subjects significantly higher than self-control or attention-placebo subjects. Friends and relatives considered therapist-control subjects to have changed significantly more than self-control or attention-placebo subjects. Findings demonstrate that self-report, overt behavioral measures, and peer ratings can be used to assess depression. (Author)

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ED189515

A Comparison of Self-Control and Therapist Control in the Treatment of Depression

Esther D. Rothblum, Leon Green and R. Lorraine Collins
Rutgers--The State University

Running head: A Comparison of Self-Control and Therapist Control

Presented at the Eastern Psychological Association
Philadelphia, PA 1979.

CG 014540

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A Comparison of Self-Control and Therapist Control in the Treatment of Depression

Depression has been one of the last categories of psychopathology to be seriously investigated by behavior therapists and researchers. Relatively recently, however, there have been increasing attempts at operationalizing depression. Theories based upon a behavioral model include those provided by Beck (1967), Costello (1972), Ferster (1965), Lazarus (1968), Lewinsohn (1974), Seligman (1975) and Wolpe (1971). Finally, depression can be viewed from the standpoint of self-control. Based on Kanfer's (1970) processes, Rehm (1977) views depression as "specific deficits at different stages of self-control" (p. 792). Thus, in terms of self-monitoring, depressed persons selectively attend both to negative events and to immediate versus delayed outcomes of behavior. In terms of self-evaluation, Rehm (1977) states that "depressed persons frequently fail to make accurate internal attributions of causality. Second, depressed persons tend to set stringent criteria for self-evaluation" (p. 793). In terms of self-reinforcement, depressed individuals self-administer low rates of self-reward and high rates of self-punishment, resulting in lessened activity levels, fewer response initiations and less persistence.

Most of the research in depression treatment consists of submitting a depressed population to one of several treatment alternatives (Lazarus, 1968; Liberman & Raskin, 1971; MacLean, Ogston & Grauer, 1973; Wolpe, 1971). However, the treatment methods being compared usually differ along so many dimensions that they encompass entire "packages." The results are thus generalizable in their package form but do not begin to separate out salient variables that are related to the best treatment results, nor provide adequate control for therapist contact nor insure adequate control groups. However, laboratory studies in the field of depression that have good internal

validity generally use a random sample of normal subjects and attempt to induce temporary symptoms of depression during the session (Hiroto, 1974; Klein, Fencil-Morse & Seligman, 1973; Miller & Seligman, 1976). Fuchs and Rehm (1977) compared a self-control treatment program of depression with a group therapy method and a waiting list control group. Yet, this study is more a "treatment package" comparison study than an evaluation of specific procedures and it is difficult, if not impossible, to identify the active ingredients. Furthermore, subjects in the self-control condition received more therapy time, in terms of homework assignments, than did the control group therapy subjects. An additional group receiving behavior therapy but not instruction in self-control could have helped eliminate the multiple-treatment interference confound.

It is difficult in Fuchs and Rehm's (1977) study to isolate self-control from the effects of the therapist-determined instruction that preceded it and other treatment procedures, again externally controlled, that the subjects are required to monitor and report concurrently. Although self-control is often an attempt to assess covert processes, the assumption that covert behavior can effect overt behavior is still based to a large extent on self-report data, and studies that control therapist variables are necessary. A further treatment condition that maximizes therapist control is needed to compare with the effects of group therapy for self-control.

The present studies attempt to integrate the methodologies described above. Rather than compare a complex treatment method to an attention-placebo or waiting list control group alone, they compare two treatment methods that are similar in all but one aspect, namely degree of therapist control. Thus, a "self-control" (SC) group that maximizes control by each group member is compared to a "therapist control" (TC) group that maximizes control by the

group leaders. The former group received training in self-monitoring, self-evaluation and self-reinforcement, similar to subjects in Fuchs and Rehm's (1977) study. The latter group received comparable training, except that the group leaders, rather than the group members, determined subgoals for evaluation, assigned points for reinforcement, and generally provided advice and structure. In Experiment 2, the two behavior therapy groups were compared to an Attention-Placebo (AP) group. All three groups met for identical time periods, over an identical time span including follow-ups, and received comparable homework assignments and therapist attention.

It was hypothesized that the TC group would improve significantly more than the SC group following treatment, because of the additional structure and control inherent in this treatment method. However, it was predicted that the reverse effect would take place at follow-up, with the SC group improving significantly more than the TC group at follow-up, because of the self-help and self-directed skills inherent in the SC treatment method. In Experiment 2, both the SC and TC groups were expected to improve significantly more than the AP group at all assessment periods.

One problem in the assessment of depression is the lack of actual behavior that can be quantified. Thus, Experiment 1 used subjects who were both depressed and obese, to obtain a quantifiable and comparable measure of depression. Experiment 2 did not limit groups to obese subjects, but looked at weight change of depressed subjects as a behavioral measure of depression. This experiment also included two motor tasks as behavioral measures of psychomotor retardation. Finally, Experiment 2 had friends and relatives of depressed subjects rate their "peers" on a list of symptoms along several modalities. It was hypothesized that both behavioral measures and peer ratings could be used to accurately assess depression, to improve the assessment

procedures often based primarily on self-report.

EXPERIMENT 1

Method

Subjects

To recruit subjects, an advertisement which briefly described the nature of the program was placed in three local newspapers requesting persons who were both depressed and overweight. Subjects who phoned were given information about the structure of the treatment program and the fee. They were informed that they would have to complete a series of assessment procedures in order to be accepted.

Of the 42 subjects who appeared at the pretesting session, only 22,[1] 2 males and 20 females, fit the following acceptance criteria: 1) $T \geq 70$ on the Depression (D) Scale of the MMPI; 2) a lower score on all other subscales than the D Scale score;[2] 3) 20% overweight; and 4) not receiving psychotherapy or participating in a weight control group at the present time.

Subjects were randomly assigned to the two experimental groups. Random assignment was modified to include friends in the same group and thus minimize treatment confounds. Subjects' availability was also taken into consideration when assigning them to groups. Rejected subjects were told to contact their local mental health center and were given the Rutgers University clinic phone number for referral sources.

Procedure

Dependent measures. At the pretesting session, each subject was given the MMPI (traditional personality measure), the Lewinsohn Pleasant Events Schedule, (behavioral measure), Beck Depression Inventory (cognitive-behavioral measure) and a specially constructed Depression Questionnaire. This last questionnaire asked for such facts as marital status, occupation, reasons for

being depressed and whether the subject was receiving medical or psychological treatment at present or was participating in a weight loss program. Finally, each subject's height and weight were measured.

Pretreatment procedures. Subjects were asked to read and sign the informed consent statement, which specified the requirements of the program and the general treatment procedures. Subjects were also required to have their physician verify that treatment for obesity was not medically contraindicated.

Treatment procedures. The Depression Reduction Program consisted of six one-hour treatment sessions held weekly and three one-hour maintenance sessions held monthly following the end of treatment. To encourage attendance, subjects deposited $50.00 during the first session and received a refund of $5.00 at the end of each session they attended. However, subjects who wished to drop out of the program received a refund of their entire fee.

During the first session, subjects handed in their completed Physician Permission Forms and Permission for Observation Forms. The group leaders then introduced themselves and group members were asked to introduce themselves and say why they were depressed.

Group sessions were conducted according to the Manual for the Behavioral Control of Depression: Therapist Control Vs. Self-Control (Rothblum, Note 1). This manual follows the guidelines of the Self Control Therapy Manual - I (Fuchs & Rehm, 1977), which has been used for the self-control of depression (Fuchs & Rehm, 1977). However, the former manual differentiates between self-control and therapist control.

Self-control group. In the SC group, two treatment sessions were devoted to self-monitoring, self-evaluation and self-reinforcement, respectively. The first session began with a general introduction to the program that

consisted of a behavioral self-control rationale. Information sheets were handed out that stressed self-help based on strategies learned in the group. Subjects were informed that mood was the function of one's own behavior and that they could gain greater control by learning skills that would help them work toward goals of their own choice.

After this introduction, the remainder of the first session focused on self-monitoring. Subjects were required to monitor each pleasurable activity engaged in during the week and evaluate the accompanying mood on a 10-point scale. Four activities were listed on a handout as suggestions, with 16 additional spaces for subjects to list their own. In the next phase, self-evaluation, which began at Week 3, subjects were encouraged to determine subgoals or targets of behavior that related to overcoming their depression, to engage in these acitivities during the week, and to assign points to each of these activities based on its importance or helpfulness. Finally, in the third phase beginning at Week 5, self-reinforcement, subjects were asked to self-reinforce participation in these subgoals by engaging in highly rewarding activities contingent upon the number of points earned. Throughout the program, the SC group sessions were centered around discussion rather than lectures and subjects were encouraged to ask other group members, rather than the group leaders, for help and advice.

Therapist control group. The TC group devoted two sessions to monitoring, evaluation and reinforcement, respectively, with the group leaders setting the criteria and maximizing control. The initial handout stressed the role of the group leaders in bringing about change. Subjects were required to monitor pleasant activities and rate the accompanying mood. Suggestions for activities were listed for subjects on a handout. In the evaluation phase

the group leaders set up lists of subgoals for each subject and assigned points based on the past week's performance in these activities. Finally, group leaders assigned lists of reinforcing activities to engage in contingent on points earned. Throughout the program, the sessions centered around the formal lectures. Subjects were encouraged to ask the group leaders for help and advice.

Posttreatment procedures. At the end of the treatment phase, both groups were encouraged to continue using the procedures they had learned. The three monthly maintenance sessions for both groups consisted of subjects' discussion of their progress and advice on any problems. No new technique was presented. Subjects unable to attend maintenance meetings were seen individually. The two groups were thus comparable in terms of total length of therapy, time spent in sessions, and homework assignments.

Subjects were tested at the end of treatment and after each maintenance session, consisting of a weigh-in, the MMPI D Scale, Lewinsohn Pleasant Events Schedule and the Beck Depression Inventory. At the final meeting, subjects again completed the entire MMPI. At all other posttest periods, subjects completed only the MMPI D Scale, composed of all 60 D-Scale items and 25 additional "filler" items.

Results

Data Analyses

A repeated measures analysis of variance was performed on the data of subjects for all dependent variables at four assessment periods. Since the complete MMPI was administered only at pretest and at the last maintenance session, the MMPI subscales were analyzed separately. Finally, a one-way ANOVA for group effects was performed on components of the treatment procedure.

Subject Characteristics

Of the initial 22 subjects, two female subjects in each group failed to appear at the first group meeting. After the first treatment session, both males dropped out because they were the only male in their respective groups. Thus, after the initial session, both the SC and TC groups had seven female subjects. One subject dropped out of each group during the course of the treatment program; there was no attrition during the maintenance phase.

The mean age of subjects in the SC group was 40.71 years with a range of 31 to 50 years. The mean age of subjects in the TC group was 35.57 years with a range of 19 to 53 years. The mean percent overweight for subjects in the SC group was 87.31% with a range of 48.71% to 179.65%, and the mean percent overweight for subjects in the TC group was 59.78% with a range of 27.87% to 100.96%.

Dependent Variables

The dependent variables in the study consisted of percent overweight, the score on the Beck Depression Inventory, the activity score and reinforcement potential score on the Lewinsohn Pleasant Events Schedule, and the score on the Depression (D) Scale of the MMPI. Percent overweight was determined by the formula

$$\frac{\text{weight - ideal weight}}{\text{ideal weight}} \times 100$$

Desirable weights were obtained from the 1960 Metropolitan Life Insurance Company's Desirable Weight Tables (U.S. Department of Health, Education and Welfare, 1967), using the median of the weight for a medium frame. Finally, all subscales of the MMPI were used as dependent variables at the beginning of treatment and the end of maintenance.

Treatment Measures

The components pertaining to the treatment procedure were analyzed. The SC and TC groups were identical in the mean number of sessions that subjects attended out of a total of six sessions. Furthermore, there was no significant difference between groups based upon the mean number of homework logs subjects completed out of a total of five assignments, the mean number of positive activities that subjects engaged in during the week, and the mean mood rating, which ranged from 0 (low) to 10 (high) experienced during these activities.

Posttreatment and Maintenance Measures

There were no significant treatment group main effects on any of the dependent measures. However, there was a significant treatment group X assessment period interaction for the Depression (D) Scale of the MMPI, F (4, 39) = 3.22, $p < .05$). A Scheffe multiple comparison shows both the SC and TC pretest levels to be significantly higher than all posttest and maintenance levels of depression. Levels of depression at all SC maintenance periods are significantly higher than the TC level at posttest or at all maintenance periods. Figure 1 shows a graph of the changes in the MMPI Depression Scale during the treatment and maintenance period for the SC and TC groups.

Place Figure 1 about here

There was a significant assessment period main effect for the Depression Scale of the MMPI (F (4, 39) = 30.29, $p < .0001$) and for the Beck Depression

Inventory (F (4, 39) = 20.01, $p < .0001$). The means are shown in Table 1. A Scheffe multiple comparison shows that, for the D-Scale, pretest levels were significantly higher than posttest or maintenance levels. For the Beck Depression Inventory, pretest scores were significantly higher than posttest or maintenance periods one and two, with three-month maintenance scores significantly lower than all previous assessment periods.

Place Table 1 about here

There was no significant effect for percent overweight or for the activity score or reinforcement potential score on the Lewinsohn Pleasant Events Schedule.

There was no significant treatment group difference on any of the MMPI subscales given at pretest and at the three-month maintenance session. However, there was a significant treatment group X assessment period interaction for the Psychopathic Deviance (PD) Scale (F (1, 10) = 5.33, $p < .05$). A Scheffe multiple comparison shows the initial T scores for SC and TC groups on this scale to be significantly higher than the TC group's score, but not significantly different from the SC group score, during the three-month assessment period.

Table 1 also indicates nonclinical and clinical scales that changes significantly from pretest to the three-month maintenance period. There were significant assessment period main effects for the nonclinical K Scale (F (1, 10) = 7.81, $p < .05$). There were significant assessment period main effects for the clinical Psychopathic Deviance (PD) Scale (F (1, 10) = 17.26, $p < .005$), Paranoia (PA) Scale (F (1, 10) = 9.30, $P < .01$), Psychasthenia (PT) Scale, (F (1, 10) = 9.30, $p < .01$), and Social Introversion (SI) Scale

(F (1, 10) = 23.22, $p < .001$); all were in the direction of lower T scores. There were also significant assessment period main effects, in the direction of higher T scores, on the Male-Female (MF) Scale (F (1, 10) = 6.35, $p < .05$) and the Mania (MA) Scale (F (1, 10) = 6.33, $p < .05$).

Discussion

Results indicate that there were significant assessment period differences for both groups, but few significant treatment group differences between the SC and TC groups on most measures. This basic finding could be the result of degree of therapist control having little effect on improvement of depression. However, the nonsigificant results could also be affected by the small number of subjects in the present study. Especially in the area of depression, attrition is a major problem. Subjects do not attend sessions because they feel "too depressed" to leave their home, or quickly lose interest in a program that requires active participation and homework assignments between sessions.

The significant interaction of treatment group and assessment period on the Depression Scale of the MMPI shows SC and TC pretest levels to be significantly higher than at all other assessment periods. More importantly, the TC group improved significantly more at posttest and maintenance than the SC group. Thus, contrary to the initial hypothesis, the TC group shows greater improvement not only after treatment, but also in maintaining this improvement during the next three months. This effect occurs only for a global, clinical measure such as the MMPI D-Scale rather than for the more specific behavioral and cognitive measures used.

The significant interaction of treatment group and assessment period on the Psychopathic Deviance subscale of the MMPI again shows both the SC and TC

groups to improve at posttest, with the TC group showing more improvement than the SC group, even though both groups had almost identical scores on the pretest. Psychopathic Deviance primarily contains items that are considered unusual or extreme for most individuals, or that indicate nonconformity to society. Depressed subjects' cognitions, however, are marked by negative self-statements which could possibly have inflated this score. The focus of the treatment program on positive self-statements and subgoals could then have led to improvement on the Psychopathic Deviance subscale. Although it is uncertain why this interaction occurred, it again provides evidence for the superiority of TC group treatment over SC group treatment.

Significant assessment period main effects were again apparent for the more global scale such as the MMPI D-Scale and for the cognitive scale, as well as for other MMPI subscales, such as K, Psychopathic Deviance, Male-Female, Paranoia, Psychasthenia, Mania and Social Introversion. One explanation for the improvement shown on the above MMPI scales during a depression treatment program could be the number of items that are considered part of the D-Scale at the same time that they are also part of the other scales. Rush, Beck, Kovacs and Hollon (1977) studied the typical MMPI profile of subjects whom they had admitted to a depression treatment program. They found subjects to score at a T of 70 or above on F, Hypochondria, Psychopathic Deviance, Paranoia, Psychasthenia, Schizophrenia and Social Introversion, as well as Depression. Another explanation could be the tendency of depressed subjects to answer items in the direction of pathology as a result of their low self-esteem and self-devaluation, both frequent symptoms of depression. Finally, it is also possible that these scales demonstrate general improvement over the course of treatment. It is not

certain why the Lewinsohn Pleasant Events Schedule did not show any improvement on depression, except that it seems to be only the more global measures mentioned earlier that indicate significant differences in the present study.

EXPERIMENT 2

Based on the results of the first study, several changes were incorporated into the second study. First, the second study recruited depressed subjects regardless of their degree of obesity, both to remove the focus on weight loss that otherwise takes place in the group sessions and also to increase the number of subjects that could be accepted into the treatment program.

In a continuing attempt to find reliable indicators of changes in depression, other than self report, two overt behavioral measures were added to the second study. The Digit Symbol subscale of the Wechsler Adult Intelligence Scale (WAIS) and the Fingertapping Task of the Halstead-Reitan Neuropsychological Battery, both of which measure impaired or slowed motor performance, were chosen. In addition, a more comprehensive behavioral scale, the Multidimensional Behavior Rating Scale (MBRS, Green, Grossi & Rothblum, Note 2) was administered. This scale asks subjects to rate their depression along the modalities of Behavior, Affect, Sensation, Imagery, Cognition, Interpersonal Skills and Physiological Problems. It also asks for a global rating of perceived current level of depression and perceived change in depression from last rating.

It could also be argued that those measures that indicated assessment period or treatment group improvement in the first study were self-rating scales and thus of questionable objectivity. Thus, the second study asked subjects to indicate a relative or friend who knew them well, and asked these "peers"

to complete the MBRS at all assessment periods as well.

Finally, the results of Experiment 1 can be interpreted only in regard to relative improvement between two treatment groups, since there was no control group. The second study included an Attention-Placebo (AP) group to control for therapist attention and group effects.

Method

Subjects

Procedures for recruiting subjects were identical to the first experiment. Of the 51 subjects who attended the pretesting session, 33 subjects, 10 males and 23 females, fitted the following criteria for admission: 1) $T \geq 70$ on the Depression (D) Scale of the MMPI; 2) the T of no other MMPI subscale higher than that of the D-Scale;[3] and 3) not receiving psychotherapy or medical treatment for depression at the present time.

Subjects were matched to one of three groups by: 1) level of depression, using the T score on the D-Scale of the MMPI; 2) sex, since the first study showed that men did not want to be in a group composed solely of women; and 3) the number of MMPI subscales on which a subject scored a higher T than on depression. Finally, subjects' availability was taken into consideration when assigning subjects to groups. Subjects who were not accepted to the study were told to contact their local community mental health center and were given the Rutgers University clinic phone number for referral sources if they still desired therapy.

Procedure

Dependent measures. The pretesting consisted of the MMPI (traditional personality measure), Beck Depression Inventory (cognitive-behavioral measure), Lewinsohn Pleasant Events Schedule (behavioral measure) and a specially

constructed Depression Questionnaire. This last questionnaire asked for such facts as marital status, occupation, reasons for being depressed, whether the subject was receiving medical or psychological treatment at present, and the name, relationship and address of a friend or relative who could occasionally rate their progress. During the first group session, subjects were weighed and their height was measured, they were given two motor tasks as behavioral indicators of depression: the Digit Symbol subscale of the WAIS and the Halstead-Reitan Fingertapping Task. Subjects also completed a revised form of the Multidimensional Behavior Rating Scale (Green, et al., Note 2).

Pretreatment procedures. Prior to treatment subjects were asked to read and sign the informed consent statement, which specified the requirements of the program and the general treatment procedure. In addition, subjects were asked to read and sign an informed consent statement during the first treatment session.

Treatment procedure. Each group met for six one-hour treatment sessions held weekly and three one-hour maintenance sessions held one, two and four months after the last treatment session. In order to encourage attendance, subjects deposited $70.00 during the first session and received a refund of $4.00 at the end of each session they attended and a refund of $3.00 for completing that week's homework assignment, since some subjects in the first study would not complete homework because they were "too depressed." College students were asked to deposit only $30.00 at the initial meeting, with refunds of $2.00 for attendance and $1.00 for completing homework.

Treatment procedures for the SC and TC groups were identical to those used in the first treatment.

The TC group was purposely scheduled to meet later in the week than the SC group, so that the mean and range of points assigned to subjects in the TC group by the group leaders could be yoked to those assigned by SC group subjects to themselves, earlier on. It could be argued that the group leaders would be more consistent and standard in assigning points than subjects themselves. It could also be argued that depressed subjects may not assign as many points to their own behavior in the SC group as the therapists would to subjects in the TC group. To control for this, the non-stringent procedure described above was used.

Attention-placebo group. The Control group consisted of an attention-placebo (AP), or general supportive psychotherapy group, to control for the therapist attention and group effects. Fuchs and Rehm (1977) similarly used this procedure in the treatment of depression. Basically, the rationale presented to this group stated that people often become depressed because of the lack of an outlet for their thoughts and feelings related to depression. The group provided such an outlet. The focus of group discussion was on negative emotional states, such as loneliness and boredom, and positive emotional states, such as happiness and increased energy, and an attempt to relate this to depression. The group leaders served only as moderators and reflected, rather than generated, material. Subjects were required to keep a "thought diary" during the week, in which they were asked to write "anything related to their core problems." The purpose of this diary was to control for the weekly assignments of the experimental groups, with similar refunds for completing the assignments.

Posttreatment procedures. At the end of the treatment phase, the three

groups were encouraged to continue using the procedures they had learned. The maintenance sessions for all groups consisted of subjects' discussion of their progress and group advice on any problems. No new techniques were presented. Subjects who were unable to attend maintenance meetings were seen individually. The three groups were thus comparable in terms of total length of therapy, time spent in sessions, and homework assignments.

Subjects were assessed at the end of treatment, at the one-month maintenance session and the four-month maintenance session. The assessment consisted of a weigh-in, the Digit Symbol Subscale, Fingertapping Task, Lewinsohn Pleasant Events Schedule, Beck Depression Inventory and the Multidimensional Behavior Rating Scale. At the final meeting, subjects again completed the entire MMPI. At both other assessment periods, subjects completed only the MMPI D-Scale, composed of all 60 D-Scale items and 25 "filler" items. Subjects also completed an Expectancy Questionnaire after they heard a description of the treatment program, and subjects answered these questions again, along with additional feedback questions, during the last treatment session.

FInally, at each assessment period, the Multidimensional Behavior Rating Scale was sent out to the people that subjects had originally listed as someone who knew them well and could rate their behavior. The MBRS was sent to these "peers" with a stamped return envelope and an instruction letter. To insure prompt return of the questionnaire, all peers who had not sent in forms by the due date were contacted by telephone and urged to mail in forms as soon as possible.

Results

Data Analyses

A repeated measures analysis of variance was performed on the data of subjects for all dependent variables. Since the MMPI was administered only at

pretest and during the last maintenance session, the MMPI subscales were analyzed separately. A one-way ANOVA for group differences was performed on components of the treatment procedure. Finally, a repeated measures ANOVA was performed for the peer ratings of the Multidimensional Behavior Rating Scale (MBRS).

Subject Characteristics

Of the 33 subjects who were accepted into the program, four subjects in the AP group, two subjects in the SC group and two subjects in the TC group wrote or called back to say they were no longer interested. After the program started, the SC group had no drop-outs, the TC group had two drop-outs and the AP group had two drop-outs. There was no attrition during the maintenance phase.

The mean age of subjects was 38.44 in the SC group, 41.67 in the TC group and 43.62 in the AP group. The mean percent deviation from desirable weight was 13.70% in the SC group with a range of 5.25% underweight to 30.83% overweight, 21.94% in the TC group with a range of 3.59% underweight to 71.69% overweight and 19.74% in the AP group with a range of 6.84% underweight to 75.81% overweight. Mean level of depression, according to T-scores on the D-Scale, was 87.44 for the SC group, 87.12 for the TC group, and 93.25 for the AP group. Furthermore, the mean number of MMPI subscales on which a subject scored a T higher than that of the D-Scale was 1.15, 1.50 and 0.50 in the SC, TC and AP groups, respectively. After the first session, subjects' mean expectancy of ability to control depression based on skills to be learned in the program was 4.40 in the SC group, 4.14 in the TC group and 3.86 in the AP group, out of a seven-point rating scale, in which a rating of one was "no help" and seven was "very helpful." Finally, subjects' mean expectancy that the program would fit their particular needs was 4.67 in the SC group, 4.00 in the TC group and 3.71 in the AP group, out of a seven-point rating scale where

one was low and seven was high.

Dependent Variables

The dependent variables for subjects in the study consisted of percent overweight or underweight, the score on the Beck Depression Inventory, the Activity Level score and Reinforcement Potential score on the Lewinsohn Pleasant Events Schedule, the T score on the Depression (D) Scale of the MMPI, the score for right and left hands on the Fingertapping Task of the Halstead-Reitan Test, and tne scaled score of the Digit Symbol Subscale of the WAIS. Percent overweight or underweight was determined by the formula:

$$\frac{\text{weight - ideal weight}}{\text{ideal weight}} \times 100$$

Desirable weights were obtained from the 1960 Metropolitan Life Insurance Company's Desirable Weight Tables (U.S. Department of Health, Education and Welfare, 1967), using the median of the weight for a medium frame. All subscales of the MMPI were used as dependent variables at the beginning of treatment and at the end of maintenance only.

Treatment Measures

Measures pertaining to the actual treatment procedure were analyzed. Subjects in the SC, TC and AP groups were present at a mean number of 5.67, 6.00 and 4.83 sessions, respectively. They completed a mean of 5.00, 4.67 and 5.00 homework logs, respectively. Furthermore, there was no significant difference between the SC and TC groups in the mean number of positive activities that subjects engaged in during the week, in their mean point rating and in the mean mood rating. Subjects in the AP group were not instructed in any of the above procedures. Furthermore, there were no significant differences in the expectancy ratings.

Posttreatment and Maintenance Measures

There were no significant group main effects on any of the dependent

measures given to subjects. However, there was a significant group main effect (F (2, 14) = 4.75, $p < .05$) in the way that the peers considered the subjects to have changed in overall level of depression since the last rating (not applicable at pretest). Peers of the TC group subjects considered the subjects to have changed significantly more (6.62 out of a total rating of 7) than did the peers of the AP group (4.0), but not more than the SC peers rated their subjects (4.94).

On the Lewinsohn Pleasant Events Reinforcement Potential there was a significant treatment group X assessment period interaction (F (6, 49) = 2.29, $p < .05$). Figure 2 shows a graph of the changes in the Lewinsohn Pleasant Events Reinforcement Potential score during the treatment and maintenance period for the SC, TC and AP groups. A Scheffe multiple comparison shows the TC group at pretest, posttest and the last maintenance period to be significantly higher on reinforcement potential than the AP group at pretest or the last maintenance period, or the SC group at pretest. Finally, the AP group at pretest is also signficantly lower than all of the above.

Place Figure 2 about here

There was also a significant assessment period main effect for the Lewinsohn Pleasant Events Reinforcement Potential (F (3, 49) = 3.24, $p < .05$), for the Beck Depression Inventory (F (3, 51) = 9.14, $p < .0001$), for the D-Scale of the MMPI (F (3, 51) = 16.37, $p < .0001$) and for the Digit Symbol Subscale of the WAIS (F (3, 49) = 13.49, $p < .0001$). There were no significant effects for the Lewinsohn Activity Level, Fingertapping Task, or for percent overweight or underweight. The means are shown in Table 2. Scheffe multiple comparisons show that on the Lewinsohn Pleasant Events Reinforcement Potential, posttest scores are significantly higher than scores at pretest or maintenance one, and that maintenance three scores are significantly higher than pretest scores. On the Beck scale, pretest scores are significantly higher than scores at posttest or at main-

tenance one or three. On the D-scale, pretest scores are significantly higher than maintenance three scores, which in turn are significantly higher than post-test and maintenance one scores. Finally, on the Digit Symbol, performance at pretest is significantly less than at posttest and follow-up.

Place Table 2 about here

On the Multidimensional Behavior Rating Scale (MBRS), subjects had significant assessment period main effects on their Total score (F (3, 51) = 7.40, $p < .0005$), as well as on the subscales of Behavior (F (3, 51) = 5.86, $p < .005$), Affect (F (3, 51) = 9.33, $p < .0001$), Cognition (F (3, 51) = 5.92, $p < .005$), Interpersonal (F (3, 51) = 3.00, $p < .05$), and Sensation (F (3, 50) = 5.06, $p < .005$). Subjects also showed a significant testing session main effect (F (3, 46) = 4.09, $p < .01$) on their perceived level of depression. The means are shown in Table 2. Scheffe multiple comparisons show pretest scores to be significantly higher than scores at posttest or maintenance for the Total score on the MBRS. On the Behavior subscale, pretest scores were significantly higher than scores at maintenance, and posttest scores were significantly higher than maintenance three. On the Affect subscale, pretest scores were significantly higher than scores at posttest or maintenance, and maintenance one was significantly higher than maintenance three. For Cognition, pretest scores were significantly higher than scores at posttest or maintenance. For Interpersonal, scores at maintenance three were significantly lower than scores at all other assessment periods. Finally, for Sensation, pretest scores were significantly higher than scores at maintenance.

On the MBRS, peers showed a significant assessment period main effect on the subscales of Behavior (F (3, 40) = 2.82, $p < .05$), Affect (F (3, 40) = 6.15

$p < .001$) and Sensation (F (3, 40) = 3.22, $p < .05$). The means are shown in Table 2. Scheffe multiple comparisons show that, for the Behavior scale, pretest score and scores at maintenance three are significantly higher than scores at posttest or at maintenance one. For Affect and for Sensation, pretest scores are significantly higher than scores at posttest or at maintenance.

On the MMPI subscales given at pretreatment and during the last maintenance session, there was a significant group main effect on the Lie Scale (F (2, 22) = 3.31, $p < .05$). A multiple comparison shows the TC group to have a significantly lower T score on the Lie Scale than the AP or SC groups.

Table 3 indicates nonclinical and clinical MMPI scales that changed significantly from pretest to the four-month maintenance period. There was a significant assessment period main effect for the nonclinical F Scale (F (1, 16) = 17.20, $p < .001$). Clinical scales that improved significantly in the direction of lower T scores included the Hysteria (HS) Scale (F (1, 16) = 12.22, $p < .005$), Hypochondria (HY) Scale (F (1, 16) = 18.65, $p < .005$), Psychopathic Deviance (PD) Scale (F (1, 16) = 15.49, $p < .001$), Psychasthenia (PT) Scale (F (1, 16) = 11.35, $p < .005$), Schizophrenia (SC) Scale (F (1, 16) = 7.40, $p < .05$) and Social Introversion (SI) Scale (F (1, 16) = 5.49, $p < .05$).

Place Table 3 about here

Discussion

As in the previous study, the results indicate that there were significant assessment period differences for both groups, but few significant treatment group differences between the SC, TC and AP groups. Since Fuchs and

Rehm's (1977) study did show differences between their self-control and attention placebo groups, the small number of subjects in the present study could be a major reason for the nonsignificant results. The significant peer rating group difference for perceived overall change shows that the TC group was perceived as changing significantly more than the AP group, but not more than the SC group. This seems to show that people become aware of overall changes in their friends' and relatives' depression rather than of improvement in specific areas. Thus, further research in this area would have to focus on ways to reduce the high attrition of depressed subjects.

Contrary to the first study, there was a significant treatment group X assessment period interaction for the Lewinsohn Pleasant Events Reinforcement Potential, a behavioral measure of depression. The TC group shows the highest performance not only at posttest, as hypothesized, but also at follow-up. This indicates that therapist control of depression, at least for this scale, is superior in maintenance to self-control, contrary to the initial hypothesis.

It is uncertain why there is a significant group difference on the MMPI Lie Scale, with the TC group "lying" significantly less than the SC and AP groups. This scale measures items that are often considered negative by individuals, yet that are true of most people. Nothing in the therapy procedure seems to have focused on such items.

There were significant assessment period main effects for the MMPI subscales of F, Hysteria, Hypochondria, Psychopathic Deviance, Psychasthenia, Schizophrenia and Social Introversion, all in the direction of lowered pathology. As mentioned for the last study, one explanation for this overall improvement during a depression treatment program could be the number of items that are considered part of the D-Scale at the same time that they also

appear on a number of other subscales. Furthermore, depressed subjects also score high on a number of other subscales (Rush et al., 1977) and could answer items more positively as their depression decreases and their self-esteem increases. Finally, scores could reflect general, overall improvement.

Significant assessment period main effects were apparent for the Lewinsohn Pleasant Events Reinforcement Potential, the Beck Depression Inventory, the MMPI D-Scale and for the Digit Symbol Subscale of the WAIS. At pretest, the mean Beck score of 26.92 is far above the cut-off score of 21 for "pure depression" (Beck & Beamesdorfer, 1974). The Digit Symbol Subscale begins at the normal level for the overall population; this level is roughly equivalent to an IQ of 100 and thus indicates slowed motor performance, since the subjects in the present study were highly verbal and educated. By the end of maintenance, the mean score had increased by two scaled-score points to 12.28. The MMPI D-Scale dropped from a mean T score of 89.20 at pretest to 73.10 at posttest and 78.16 at the end of maintenance. Considering that a T score of 70 is considered clinical depression, the present population was severely depressed by clinical standards initially, and was much less depressed after the program ended.

There were no significant effects on the Lewinsohn Pleasant Events Schedule Activity Level or on the Fingertapping Task. On Activity Level, the Lewinsohn Scale does not have a ceiling level, and there was great variability on the range of numbers that subjects listed on this scale. The Fingertapping Task may not be sensitive enough to detect differences in psychomotor performance over a period of only five months. It is used as a task of psychomotor retardation in organicity, where impaired performance is much grosser than it is in depression.

Significant assessment period main effects were also apparent for the Total score of the MBRS and for the subscales of Behavior, Affect, Sensation,

Cognition and Interpersonal. Thus, the results indicate that more behavioral measures can be used to assess depression. This greatly enhances the ability to measure improvement in an area as vague and ill-defined as depression. There were no significant effects for the subscales of Imagery and Physiological on the MBRS. Probably this is because each of these subscales has only three items, and they thus are the shortest and least comprehensive scales.

Similarly, the results indicate that friends and relatives of depressed subjects can accurately assess level of depression. In addition to the significant group difference in perceived level of depression, there were significant assessment period main effects for the MBRS subscales of Behavior, Affect and Sensation. These subscales are probably the most overt and noticeable for outside observers. Furthermore, mean peer ratings are considerably lower than subjects' own ratings, providing support for the earlier hypothesis that depressed subjects, because of lowered self-esteem, may tend to overrate themselves on degree of pathology. Thus, the results indicate that one does not have to depend solely on depressed subjects' self-report for improvement. Hopefully, behavioral measures and peer ratings will continue to be used to improve the quality of research in the area of depression treatment.

Conclusion

In summary, the results of both studies indicate tentative support for the first part of the initial hypothesis, that increased control by group leaders is superior to self-control of depressed subjects. This was evidenced by the results of the MMPI D-Scale in Study I and for the Lewinsohn Pleasant Events Schedule Reinforcement Potential in Study II, and was confirmed by peers in Study II, who perceived TC group subjects to have changed the most on overall depression. Contrary to the initial

hypothesis, however, TC group subjects also maintained their improvement on the above measures more than SC group subjects. It seems then that maximizing therapist control is more beneficial for depressed individuals than focusing on self-help skills and group support. Possibly because of their tendencies to experience low self-esteem, feelings of hopelessness and failure and inactivity, depressed subjects cannot be their own "therapist" very well. Instead, they require structure and direction in order to improve.

It is important to note that, although the therapist control treatment provided organization and structure, the TC, SC and AP subjects had identical contact with therapists. Thus, contrary to the designs of previous studies in depression, it is clear in the present case that it is degree of control and not time spent in therapy, or on therapy-related activities outside the session, that is the crucial variable.

There were significant assessment period main effects for both groups in Study I on the MMPI D-Scale and the Beck Depression Inventory, and for all groups in Study II on the MMPI D-Scale, Beck Depression Inventory, Lewinsohn Pleasant Events Schedule Reinforcement Potential and Digit Symbol Subscale. It is unclear whether this is the result of spontaneous remission or whether even the use of non-specific group therapy, as in the case of the AP group, can be beneficial and lead to improvement for depressed subjects. However, the use of a waiting list control group to answer this question may be a problem for ethical reasons, since it is questionnable whether acutely depressed subjects should be left without treatment.

The second study also demonstrated that it is possible to rely on behavioral measures and on observer ratings for the assessment of depression. If anything, depressed subjects overrate the degree of their own depression compared to the perceptions of friends and relatives. Further research

should rely increasingly on such measures for assessment of depression improvement, until such global self-report measures as the MMPI will no longer be necessary.

Thus, the present studies are an attempt to improve the internal validity of depression treatment research, by reducing the "package" format of treatments to variables that can be quantified and compared, yet controlling for all other treatment variables. The results of these studies should be considered tentative until future research provides additional supporting data. Further research can then manipulate additional variables, such as length of therapy, number of maintenance sessions, time spent on homework assignments or group size to determine the additional effect of these variables on improvement of depression. Because depression is reported as a vague, ill-defined and "internal" state is no reason to avoid the use of controlled research in its treatment and assessment.

Reference Notes

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Footnotes

This research was conducted as a partial fulfillment of the requirements for the masters degree of the first author at Rutgers University. The first author gives special thanks and gratitude to Dr. Leon Green, thesis advisor, for his assistance with the research and manuscript. Special thanks also go to Lorraine Collins, Dr. Peter Nathan, Dr. Steven Kopel and Dr. John Miller. Requests for reprints should be sent to Esther Rothblum, University of Mississippi Medical Center, 2500 N. State Street, Jackson, Mississippi 39216.

[1] Based upon the above criteria, assignment of subjects to all three groups, two experimental and one control group, was impractical and statistically inappropriate. It was decided to run only the two experimental groups, as a comparison of treatment procedures only.

[2] Initially, the second criterion required no significant pathology on any MMPI subscale other than the D scale, but very few subjects fit this criterion and it was modified.

[3] Although the second criterion had already been modified during the first study, it was now eliminated altogether, since a large percentage of subjects with a high T on depression had equally high or even higher T's on other subscales. Thus, subjects were matched across groups according to high performance on other MMPI subscales.

Table 1

Means and Standard Deviations of MMPI Depression Scale Scores and Beck Depression Inventory Scores at Each Assessment Period, and MMPI T-scores at Pre-test and the Three-Month Maintenance Period

Measure		Pre Test	Post Test	1-Month Maintenance	2-Month Maintenance	3-Month Maintenance
D-Scale[a]	M	80.94	65.37	65.26	63.53	67.19
	SD	0.62	0.76	0.87	0.79	0.79
Beck	M	23.81	14.35	14.28	12.54	8.12
	SD	1.12	1.36	1.57	1.43	1.43
Nonclinical Scales						
K		44.12				50.83
Clinical Scales						
PD		74.88				62.33
MF		44.38				50.25
PA		68.75				58.33
PT		75.38				65.67
MA		53.50				60.17
SI		71.19				60.92

[a]Analysis was performed on raw scores of the D-Scale, since all Ss were of the same sex and thus required no transformation to T-scores.

Table 2

Means of All Significant Assessment Period Main Effects

For Subjects and Peers

Measure	Pretest	Posttest	Maintenance One	Maintenance Three
Beck	26.92	14.40	16.10	13.39
Digit Symbol	10.24	11.70	11.95	12.28
D-Scale	89.20	73.10	74.38	78.16
Lewinsohn	86.84	103.21	91.19	99.33
MBRS-Total				
Subjects	218.68	187.80	188.38	174.79
Behavior				
Subjects	57.80	52.65	49.43	46.63
Peers	44.60	35.37	35.44	43.40
Affect				
Subjects	38.72	32.55	33.33	29.47
Peers	32.90	23.16	24.56	25.60
Sensation				
Subjects	20.76	18.10	18.76	16.83
Peers	18.00	13.05	14.06	14.00
Cognition				
Subjects	62.24	53.20	52.05	50.26
Interpersonal				
Subjects	15.24	14.05	15.14	12.00
Level of Dep.				
Subjects	67.56	49.35	63.42	42.69

Table 3

Means of MMPI Subscale T Scores at Pretest and the Four-Month Maintenance Period

Subscale	Pretest	Four-Month Maintenance
Nonclinical Scales		
F	71.32	61.89
Clinical Scales		
HS	70.00	63.37
HY	74.04	66.68
PD	74.24	66.16
PT	80.24	71.84
SC	80.28	71.58
SI	67.16	63.32

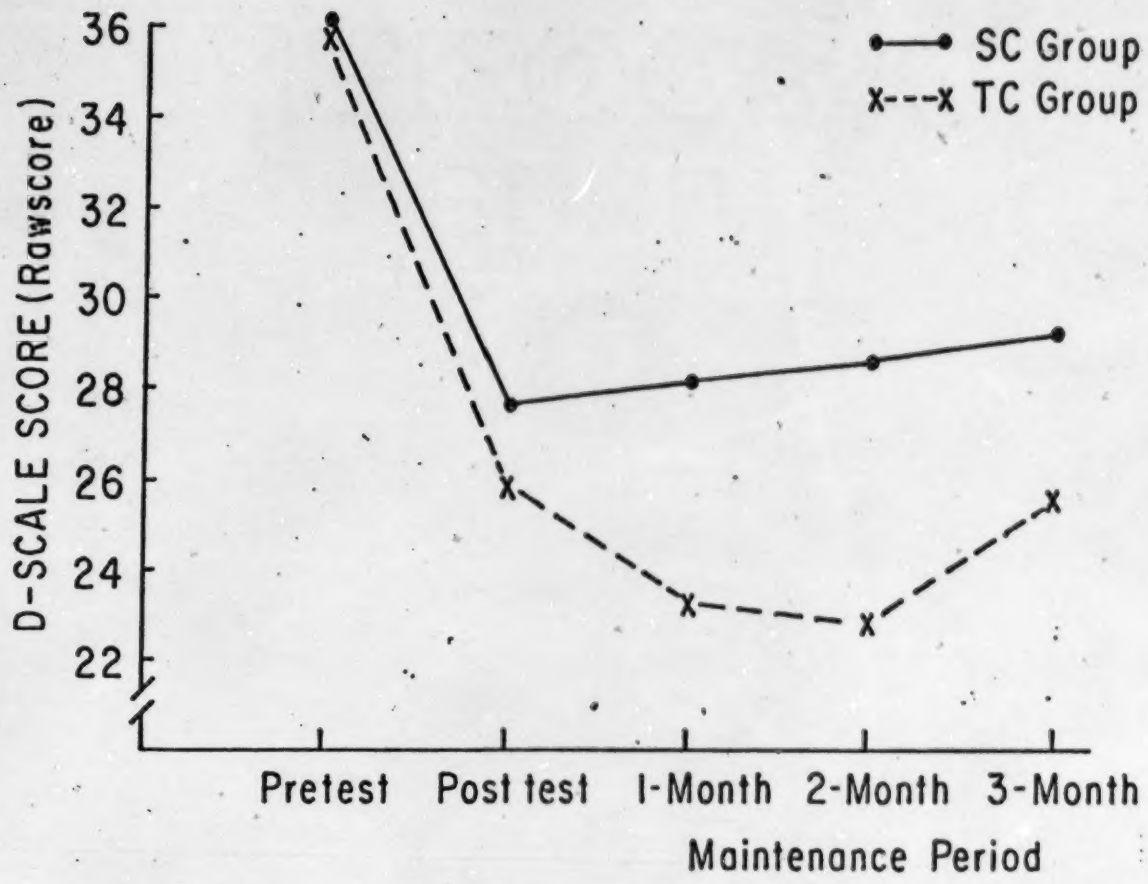

Figure 1. Changes in the MMPI D—Scale for Each Group During the Treatment and Maintenance Periods

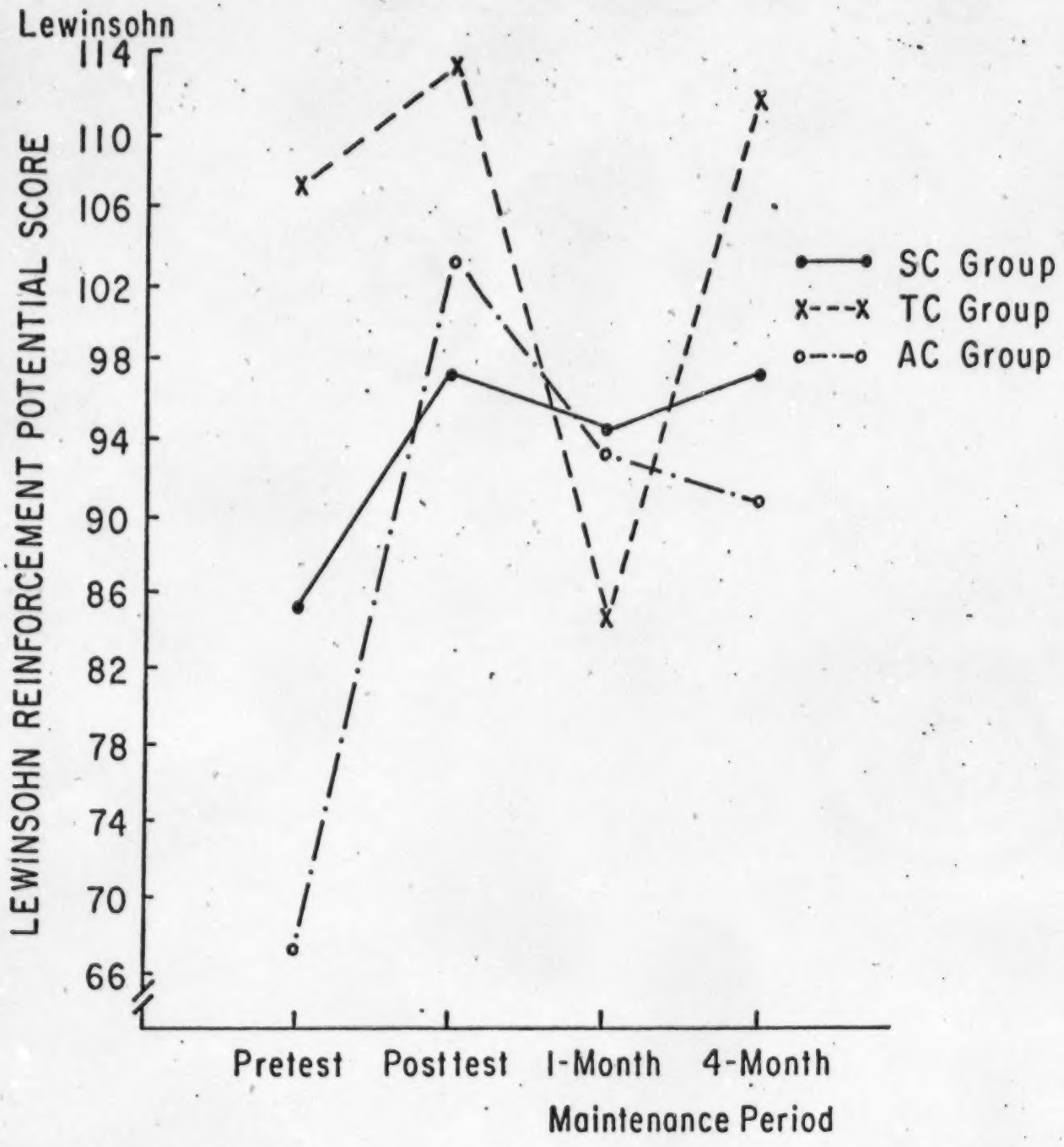

Figure 2 Changes in the Lewinsohn Pleasant Events Reinforcement Potential for Each Group During the Treatment and Maintenance Periods